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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/526,173	03/15/2000	Isao Imamura	1714.0029	9971

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

TUGBANG, ANTHONY D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/526,173

Applicant(s)

IMAMURA, ISAO

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/15/04 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 8-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In Claim 8, the recitation of “simultaneously” (line 13), as this applies to the application of light to both the first active energy setting material and the ink-repellent second active energy setting material, is new matter. It is noted that the term of “simultaneously” was added to Claim 8 in the amendment filed on 9/22/03 and the specification and drawings, as originally filed, do

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provide support for applying light to both the first active energy setting material and the ink-repellent second active energy setting material *simultaneously*.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 8, 9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagawa et al 5,458,254, referred to hereinafter as Miyagawa'254, in view of Miyagawa et al 5,331,344, referred to hereafter as Miyagawa'344.

Miyagawa'254 discloses a method of manufacturing an ink jet recording head comprising: preparing a base plate 1 having an ink ejection pressure generating element 2 (in Fig. 1) and a liquid path pattern 4, which is removable (see results of Figs. 6 and 7), located on a part of the base plate; with the use of a soluble resin (see col. 9, lines 50-55); applying a first active energy setting material (resin film 5) on the base plate and the liquid path pattern (see Fig. 3); applying an ink-repellent second active energy setting material (resist 6), which at some point is dry, on the first active energy setting material (see Fig. 4); exposing the first active and the ink-repellent second active energy setting materials in a process to expose both the first active and the ink-repellent second active energy setting materials simultaneously corresponding to an ink ejection port (shown in Fig. 5); and developing the first active and the ink-repellent second active energy setting materials with an aqueous solution (see col. 16, lines 41-46) to form the ejection port 7 above the ink ejection pressure generating elements 2 (see Fig. 6).

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Regarding Claims 9 and 11, Miyagawa'254 teaches that the ink-repellent second active energy setting material 6 is sprayed by fine particles of spin coating, which includes a drying process of either sputtering, vacuum deposition, or hardening through baking, to apply the ink-repellent second active energy setting material (see col. 11, lines 40-56) on the base plate.

Regarding Claim 12, Miyagawa'254 further teaches that the first active energy setting material 5 can include the composition of an epoxy resin (see col. 10, line 51 to col. 11, line 12).

Miyagawa'254 teaches substantially all of the limitations of the claimed manufacturing method except that the step of exposing is accomplished by applying light through a mask to both the first active and the ink-repellent second active energy setting materials.

Miyagawa'344 teaches forming an equivalent liquid path pattern on a base plate 1 by exposing a first active energy setting material (photosensitive layer 3 in Fig. 5) and an ink-repellant second active energy setting material (photosensitive layer 5) by applying light simultaneously to both materials (see Fig. 3) through a mask 7 and afterwards developing the liquid path pattern 3 (see col. 12, lines 24-37). One such advantage of the above process provides for a liquid path pattern that has a high production yield (see col. 2, lines 10-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the exposing step of Miyagawa'254 by applying light through a mask, as taught by Miyagawa'344, to positively provide a liquid path pattern that has a high production yield.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagawa'254 in view of Miyagawa'344, as applied to Claim 8 above, and further in view of Chambers et al 4,429,027.

Miyagawa'254, as modified by Miyagawa'344, discloses the claimed manufacturing method as relied upon above, further including that the ink-repellent second active energy setting material 6 is a photoresist mask made from a silicon oxide composition (see col. 16, lines 13-15). However, the modified Miyagawa'254 method does not teach that the ink-repellent second energy active setting material is characterized by a flexographic printing method.

Chambers teaches a photoimaging process in which the photoresist or photomask is created directly on the surface to be processed, which simplifies the manufacturing process (see col. 1, line 60 to col. 2, line 5). This photoimaging process is considered to be a flexographic printing method by including the formation of the photoresist or photomask as a flexographic printing plate (see col. 6, lines 24-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the ink-repellent second energy active setting material of Miyagawa'254 by utilizing it as a flexographic printing plate, as taught by Chambers, to achieve the same art recognized equivalents of exposing and developing the first active and the ink-repellent second active energy setting materials, which would simplify the overall manufacturing process saving production time and costs.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagawa'254 in view of Miyagawa'344, as applied to Claim 8 above, and further in view of Yasui et al 4,536,468.

Miyagawa'254, as modified by Miyagawa'344, discloses the claimed manufacturing method as relied upon above and further including that the ink-repellent second energy active setting material 6 is a photoresist mask made from a silicon oxide composition (see col. 16, lines

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13-15). However, Miyagawa'254 does not teach that the second energy active setting material is an epoxy resin cured by cationic polymerization.

Yasui suggests that photoresists can comprise compositions of either silicon resins or epoxy resins, which are cationic, polymerized compounds (see col. 5, lines 39-53) and provide the advantages of having a photoresist pattern of a very high resolution (see col. 1, lines 4-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the second energy active setting material of Miyagawa'254 by forming the material with an epoxy resin, as taught by Yasui, to positively provide a photoresist of second energy active setting material with a high resolution of patterning.

Response to Arguments

8. Applicant's arguments in the amendment/response filed on 3/20/04 have been fully considered but have not been deemed to be found as persuasive.

In regards to the merits of the prior art, the applicants' contend that the prior art does not teach exposing the first active energy setting material and the ink-repellent second active energy setting material in a process by an application of light to both of the materials simultaneously through a mask corresponding to the ejection port for ink.

The examiner most respectfully traverses in that the above feature was relied upon in Miyagawa'344. Miyagawa'344 clearly shows a mask 4 and the application of light (in Fig. 5) in forming a liquid path pattern and subsequently developing both materials for the advantages discussed above. The exposure processes of both Miyagawa'344 and Miyagawa'254 are each to form art recognized equivalent ink-jet heads. It is the structure of each ink jet head that is

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recognized as being equivalent, not the exposure of the first active and the ink-repellent second active energy setting materials.

Furthermore, note the comparison between Figure 7 of the applicant(s) specification and Figure 5 of Miyagawa'344. These figures are identical as each illustrates exposing by the application of light to the first active and the ink-repellent second active energy setting materials and that this application of light to both can be said to be "simultaneously" to the extent that the Figures of each are identical.

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599.

The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.



A. Dexter Tugbang
Primary Examiner
Art Unit 3729

July 12, 2004